

**San Jacinto Talking Points
Community Meeting 2/17/2016**

Slide 1: Intro

- **Welcome**
- **I will be talking tonight about the San Jacinto River Waste Pits Superfund Site.**
- **Some of you may not know me, so I'm Gary Miller, the EPA Remedial Project Manager for the Site.**

Slide 2: Aerial

- **This is an overhead view of the site.**
- **It's located at Channelview in the San Jacinto River next to I-10.**
- **The white area is a part of a temporary cap that was installed in 2011.**
- **A large part of the cap is underwater, the edge is shown by the yellow line.**

Slide 3: Cap Investigation/Repair

- **Tonight I'd like to focus on the work that was done in December, when a damaged area of the cap was found & repaired. After the presentation I'd be glad to answer any questions about the cap, or about anything else at the site.**

Slide 4: Diver

- **There are ongoing surveys of the underwater parts of the cap to check the cap.**
- **The surveys are a part of the site inspections that are being done twice per year now.**
- **These surveys have limited resolution, and there were concerns about the integrity of the underwater parts of the cap.**
- **The EPA dive team was asked to do an underwater inspection to check the cap – this was done on December 10.**
- **The inspection including manual probing with a rod, using a side scan sonar, and a visual inspection if clarity allowed.**
- **During the dive the clarity was very poor so nothing of the cap could be seen; and the side scan sonar wasn't much help either.**
- **The manual probing did find a damaged area that I'll cover in a later slide.**

Slide 5: Dive Team Inspection Area

- **This slide shows an aerial view of the waste pits before the cap was installed.**
- **The edge of the cap is shown by the yellow dots.**
- **The areas inspected by the dive team are shown by the yellow and red boxes.**
- **So there was a large part of the underwater cap that the dive team didn't cover.**
- **The yellow boxes are in deeper water areas where the divers were underwater for the probing, and the red area was shallow enough that the probing could be done by walking over the area.**
- **One thing the divers found that there were shellfish growing all over the cap & that walking on the cap was difficult due to poor footing & shells cutting their boots.**

- That brings us to the damaged area they found – it's shown by the small red oval on the northwest part of the cap.

Slide 6: Dive Team Cap Probing

- These pictures show the EPA Dive Team probing over the damaged area
- They are using a 10-foot PVC pipe as a probe.
- This was in a shallow water area that was between 1 and 2 feet deep.
- In the first picture, a 10 foot pipe was inserted through where the armor rock should have been, but no rock was found to a depth of about 6 feet below the bottom.
- The next picture shows the pipe covered with bottom sediment.

Slide 7: PRP Cap Probing

- So, EPA then directed to PRPs to perform sampling and a full delineation of the damaged area.
- And, just before Christmas this was done with EPA oversight.
- This picture shows the PRPs' contractors probing with PVC pipes to define the damaged area, which was found to be about 25 feet across; and for a reference this was about the same size as the boat which was 24 feet long.
- The pipes are pushed through areas where a gap was found in the armor rock.
- Gaps existed in the armor cap, but a lot of rock/shell was also found.

Slide 8: Sampling Locations

- Show damaged area (red line) & describe bottom depths/slope.
- Sediment sampling was done at the same time just before Christmas.
- There was no sediment on top of the armor cap outside of the damaged area, or on the sloping area.
- At the toe of the slope and outwards to the edge of the cap there was about two feet of sediment that had been deposited over the cap.
- The PRPs collected a total of 7 sediment samples.
- 3 were located in the damaged area.
- 2 more were at the toe of the slope and two more were farther out about 100 feet from the damaged area.
- EPA contractors collected 3 split samples, one from the damaged area, one at the toe of the slope, and the third was with one of the farther out samples.
- Split samples are collected from the same sediment sample but are sent to different labs to confirm that the results are similar.
- However, we don't expect results to be exactly the same because sediment is highly variable, and the lab results have some variability too even if the correct procedures are used.

Slide 9: Sample Picture

- This is a picture of one of the samples collected from the damaged area.
- It contains stone from the cap, but also shells and sediment.
- The sediment was collected for analysis.

Slide 10: Geotextile installation

- After the investigation, the EPA directed the PRPs to repair the damaged area.
- The repair started a few days before New Year's, and finished in early January 2016.
- The plan was to install geotextile fabric over the damaged area, then cover it with a minimum of 1 foot of armor rock.
- The repair was to extend at least 5 feet beyond the damaged area.
- This picture shows placing one of the geotextile fabric panels over the damaged area.

Slide 11: Placing rock

- This is a picture showing the placement of rock over the geotextile.
- The rock used has a median diameter of 8 inches, which is larger than the material initially used there, which had a 3 inch median diameter.

Slide 12: Placing additional rock

- After the rock was placed, manual probing was done over the repaired area, and additional rock was added where needed.
- This picture shows the repair area at low tide, when much of the repair is visible.
- So here they were adding additional rock to bring up the low areas and to cover the edges of the geotextile.
- You can see some of the geotextile on the near edge of the repair before it was covered.

Slide 13: Final Repair

- This picture shows the completed repair at low tide.
- At high tide this is all underwater.

Slide 14: Repair Diagram

- This figure shows the repair area.
- The red dashed line is the damaged area, and the blue dashed line shows the surveyed area of the rock added.
- The new rock extends well past the edge of the damaged area.
- The cross sections on the right side show the surveyed thickness achieved over the repaired area.
- The red line shows the required thickness of 1 foot, and the survey shows that the added rock exceeded that across the damaged area.

Slide 15: Sampling Results

- So, what did the sampling show?
- This figure has the sampling results for both the PRPs' samples and the EPA samples.

- Looking at the damaged area shown in red, the 3 samples varied from 8,000 to 43,700 ppt. The EPA sample from this area was 34,000 ppt, which is similar to the PRP results.
- At the toe of the slope, the samples are likewise similar, 144 (PRP) and 130 (EPA).
- The farthest samples are similar as well, 30-32 ppt (PRP) and 54 ppt (EPA).

Slide 16: River sediment samples outside of cap

- Sample locations shown by the green dots.
- Samples ranged from 14 ppt to 92 ppt in this area.
- Samples over cap outside of damaged area, 30 to 145 ppt, have similar compositions to the surrounding San Jacinto River as shown in the next few slides.

Slide 17: Fingerprint of sediment in damaged area

- There are 17 types of dioxins & furans reported in lab analysis.
- The relative concentrations for each type of dioxin depends on the source of the dioxin.
- Dioxin from paper mill waste is different from dioxin from diesel exhaust, for example.
- This slide shows the percentages of the different dioxin types for sediment in the damaged area.
- It's called a fingerprint of the sample.
- Here the tetra dioxin/furan are by far the largest part of the total, comprising 80% of the total dioxin concentration.
- By the way, tetra means that the dioxin molecule contains four chlorine atoms; it's also the most toxic of the dioxin types.
- This composition is similar to the dioxin composition of the paper mill waste in the waste pits.

Slide 18: Fingerprint of sediment outside of the damaged area.

- This fingerprint is from one of the sediment samples outside of the damaged area at the toe of the slope.
- 80% of the dioxin concentration is from octa dioxin.
- The composition of this sample, and the other samples outside of the damaged area, are very different from the fingerprint for the damaged area, which had 80% tetra dioxin.
- This fingerprint is similar to the fingerprints for the samples surrounding the waste pits.

Slide 19: What does the data tell us?

- First, paper mill waste was exposed in the damaged area.
- This waste had high levels of dioxin of over 40,000 ppt that created a contact threat to persons in contact with it.
- The threat has been addressed by covering the damaged area with the geotextile and rock.

- The sediment outside of the damaged area is similar to the surrounding San Jacinto River sediment.
- These levels do not present an immediate threat.

Slide 20: Release?

- After looking at all the information, the evidence points to a minimal release.
- Why?
- Because the nearby sediment, downhill from the damaged area, has a similar composition to the surrounding river sediment
- Also, even though there were gaps in the rock cover, there were still a lot of rocks and shells present that would serve to at least partially isolate the waste.
- Finally, there was not a hole or washout in the damaged area, so no large amount of waste material was not removed.

Slide 21: Cause of damage?

- At this point we don't know.
- It could have been a barge strike or maybe a construction defect.
- That brings us to the next steps.

Slide 22: Next steps

- We are asking the Corps of Engineers to do assessment of the damaged area – more on that later.
- One of the concerns is that things could be happening at the site when no one is there, so the PRPs are working on getting and installing 6 solar powered cameras that will be monitored 24 hrs per day.
- The cameras should be in place in March.
- The warning buoys are only around a part of the cap, so additional buoys will be added to cover the rest of the cap.
- Direct the PRPs to perform a full underwater inspection on the temporary cap with EPA oversight. This will be based on input from the Corps.
- The last thing is to perform the sampling that is being planned now. The sampling will consist of surface water, ground water, pore water, and sediment. 3 of the 4 workplans are being revised based on direction from EPA with input from the partner agencies – which include TCEQ, the POHA, and Harris County.

Slide 23: Corps of Engineers Cap Assessment

- EPA is asking the Corps to review all the information & determine the cause of the damaged area as best they can
- The current inspection methods – surveys, didn't identify the damaged area. We are asking the Corp to recommend methods for a full underwater cap inspection now to make sure there are no more problem areas (dive team just covered a part of the cap).
- And, what is needed for the future inspections.
- Finally, we are asking the Corps to recommend protective measures to prevent any future damage to the cap.

- Once the Corps report is completed, EPA direct the PRPs to complete the needed actions.

Slide 24: Long Term Remedy

- Before the cap damage was found and repaired, we were working towards a remedy selection for the site.
- So, I thought I'd wind up with a quick update on that.

Slide 25: Status of Remedy Selection

- We have a draft Feasibility Study prepared by the PRPs.
- The purpose of a Feasibility Study is to assess the pros and cons of potential remedies.
- For San Jacinto, the potential remedies range from containment to full excavation and removal.
- The San Jacinto Site is complex, so we've asked the Corps for technical assistance to help with dealing with all the site related issues.

Slide 26: Corps Technical Assistance

- So, what is the Corps doing now?
- They are running computer models on the river and how it may affect the various remedy alternatives.
- They're also reviewing the current cap as it exists now, assessing the reliability of the alternatives, assessing the potential for long term migration through the cap.
- In addition, they are developing Best Management Practices for the excavation alternative to reduce the re-suspension of contaminated sediment.
- And finally, they are assessing the water quality and fish impacts for the alternatives.
- One last thing before I leave this slide, all of the information on the site, including the recent experience with the cap damage, will affect the long term reliability assessment of the cleanup alternatives.

Slide 27: The Superfund Process

- We're almost done.
- This last slide shows the different steps in the Superfund process.
- We're doing the Feasibility Study now, with the Record of Decision, or ROD, next.
- The ROD will select the final remedial action for the site.
- We now expect the Corps reports (both the cap damage assessment & the remedial alternatives assessment) will be completed in April.
- After that the site and proposed remedy will be presented to the National Remedy Review Board, who are senior technical & management people from across EPA.
- After we have their input, we will complete the Proposed Plan for the remedy selection and present it at a public meeting during a public comment period, which lasts one month.
- The final remedy will be selected in the ROD after considering the public comments.

That's all of the slides I have for tonight, so I want to thank everyone for coming, and please let me know if you have any questions.